

the specimens showing them only 1.2–2 cm. in diameter (in *D. minganensis* 1.5–3.5 cm. thick); in *D. luteola* the slender and short-tomentulose lower pedicels are 4–8 mm. long (in *D. minganensis* thick, long-pubescent and only 2–4 mm. long). In *D. luteola* the siliques are pubescent with ascending to barely spreading and chiefly simple trichomes mostly less than 0.5 mm. long (in *D. minganensis* villous with divergent to retrorse mostly 2–3-pronged trichomes 0.5–1 mm. long). A habitual character, furthermore, is apparently a significant one. The primary racemes of *D. luteola* when mature make up, as in *D. aurea*, a large portion of the plant, occupying  $\frac{1}{3}$ – $\frac{2}{3}$  its full height; in *D. minganensis* the thick spike is, in maturity, only  $\frac{1}{5}$ – $\frac{2}{5}$  the full height of the stem.

The material from James Bay is both in anthesis and in fruit. It is all rather slender and with narrow leaves, but it has the pubescence of stems, leaves, pedicels and siliques which characterize *D. minganensis*. In the James Bay area alone does *D. minganensis* occur near *D. aurea*, which on the mainland near-by seems perfectly typical. For consideration of Mrs. Ekman's interpretation of *D. minganensis* as a hybrid see p. 250.

(To be continued)

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## DISTRIBUTION NOTES CONCERNING CERTAIN PLANTS OF GLACIER NATIONAL PARK, MONTANA

BASSETT MAGUIRE

FROM July 15th to August 15, 1932, the writer had opportunity to make observations on and collection of plants in Glacier National Park, Montana. These notes constitute record of certain plants which seem to establish new records for or extend our knowledge of distribution of several rare or unusual plants within this area.

**EQUISETUM PALUSTRE L.:** Occurring quite commonly along the shaded banks of the outlet of Lower St. Mary Lake. Reported by Standley from Belton, on the west side of the Park.<sup>1</sup>

**EQUISETUM SYLVATICUM L.:** Found in damp woodland at the head of Two Medicine Lake.

**LARIX LYALLII Parl.:** A fine grove of this alpine larch occurs at timber line in Preston Park under the west slope of Siyeh Pass.

**\*SPARGANIUM MINIMUM Fries.:** Locally abundant about a shallow pond 1 mile south of John's Lake (near Lake McDonald).

<sup>1</sup> Standley, P. C. Flora of Glacier National Park, Montana. Contr. U. S. Nat. Herb. Vol. 22, Part 5, 1921.

\*The asterisk designates those plants which seem hitherto to have been unreported from the Park.



\**POTAMOGETON FILIFORMIS* Pers.<sup>1</sup>: Common in the bays about the inlet of St. Mary Lake, and near outlet of Lower St. Mary Lake.

\**POTAMOGETON FILIFORMIS* Pers., var. *BOREALIS* (Raf.) St. John.: This pond weed is common and generally distributed in shallow lakes and pond bottoms, and slow stream beds, particularly in the Swift Current and St. Mary drainage.

\**POTAMOGETON VAGINATUS* Turcz.: Locally abundant in Lower St. Mary Lake and Lower Two Medicine Lake. These two lakes support the finest development of pond-weeds to be found in this area.

\**POTAMOGETON FRIESII* Rupr.: Common about outlet to Lower St. Mary Lake, and in pools above Lower Two Medicine Lake.

\**POTAMOGETON PANORMITANUS* Biv., var. *MINOR* Biv.: Very abundant in shallow pond near outlet to Lower St. Mary Lake, and in bays at outlet of this lake. Rare in Two Medicine Lake.

\**POTAMOGETON OBTUSIFOLIUS* Mert. & Koch.: Collected and reported common by Dr. A. S. Hazzard and Mr. Marion Madsen in Howe Lake.

*POTAMOGETON PUSILLUS* L., var. *MUCRONATUS* (Fieber) Graebner.: Common about inlet of St. Mary Lake and stream bed between Lake Josephine and Swift Current Lake.

*POTAMOGETON PUSILLUS* L. \*var. *POLYPHYLLUS* Morong. Lake Josephine.

*POTAMOGETON EPIHYDRUS* Raf., var. *NUTTALLII* (Cham. & Schlecht.) Fern.: Abundant in shallow ponds one mile south of John Lake. (According to Fernald<sup>2</sup> *P. epiphydrus* is reported by Standley from Glacier Park as *P. compressus* L. The writer did, however, find a floating fragment of *P. zosteriformis* Fern., the *P. compressus* of Am. Auth., in Lower St. Mary Lake. This species should be sought there.)

*POTAMOGETON TENUIFOLIUS* Raf. (*P. alpinus* of Am. Auth.): Abundant in Lower Two Medicine Lake, and common in lakes and streams of the Swift Current drainage. (This is possibly the *P. lucens* L. reported by Standley.)

*POTAMOGETON GRAMINEUS* L., var. *GRAMINIFOLIUS* Fries.: Occurs abundantly in Lower Two Medicine Lake and commonly in Lake McDonald. (The *P. heterophyllus* Schreb. of Standley's Flora of Glacier Park.)

\**POTAMOGETON PRAELONGUS* Wulf.: Sterile material was found abundantly in Lower Two Medicine Lake and in deep water of St. Mary and Lower St. Mary Lakes.

*STIPA COLUMBIANA* Macoun.: Found growing as a weed in the Public Camp at Many Glaciers.

\**POA PAUCISPICULA* Scribn. & Merr.:<sup>5</sup> This arctic blue grass was found occurring occasionally in more protected pockets of deeper,

<sup>1</sup>The determinations of all Potamogetons and Carices reported in this paper were kindly verified or made by the Gray Herbarium.

<sup>2</sup>Fernald, M. L. The Linear-leaved North American Species of Potamogeton, Section Axillares. Mem. Gray Herb. III, July 1932.



more moist soil on the rocky slopes of Piegan Pass, well above the timber line, at an altitude of 7300 feet.

\**POA STENANTHA* Trin.:<sup>1</sup> This interesting grass was collected along the dry, grassy, sparsely wooded north slopes near the outlet of St. Mary Lake.

\**GLYCERIA GRANDIS* S. Wats.: Growing in marshy areas near outlet of Lower St. Mary Lake.

\**BROMUS CILIATUS* L.: In meadows near outlet of Lower St. Mary Lake.

\**CAREX AQUATILIS* Wahlenb.: Growing in marsh below Two Medicine along with the abundant *C. Kelloggii* W. Boott.

\**CAREX PSEUDO-SCIRPOIDEA* Rydb.: Occurring in marshes about inlet to Grinnel Lake.

\**CAREX OEDERI* Retz., var. *PUMILA* (Cosson & Germain) Fernald.: Growing in bog at John's Lake.

*CAREX VESICARIA* L., \*var. *DISTENTA* Fries.: In marsh about Swift Current (McDermott) Lake.

\**JUNCUS NODOSUS* L.: About low lying marsh near outlet to Lower St. Mary Lake.

*TOFIELDIA PALUSTRIS* Huds.: Abundant in sphagnum bog at Preston Park.

\**SALIX MONOCHROMA* C. R. Ball<sup>6</sup>?: This small willow occurs commonly at timber line about Gunsight Lake.

*SALIX COMMUTATA* Bebb, \*var. *DENUDATA* Bebb:<sup>2</sup> Occurring commonly with the species about the shores of Gunsight Lake.

\**STELLARIA LONGIFOLIA* Muhl.:<sup>3</sup> Occurring in marsh near outlet to Lower St. Mary Lake.

\**DRABA MCCALLAE* Rydb.:<sup>4</sup> This plant was collected along shaded banks on the trail above Gunsight Lake.

*POTENTILLA PALUSTRIS* (L.) Scop.: Occurring plentifully in the marshes of Mirror Pond, above St. Mary Lake.

*CALLITRICHE PALUSTRIS* L.: Growing abundantly on mud about pond near outlet to Lower St. Mary Lake, and in marsh south of John's Lake, occurring perhaps less commonly than *C. autumnalis* L. which is found generally in the quiet waters of the Park.

*HIPPURIS VULGARIS* L.: The submerged form was found quite widely distributed in the Park; in St. Mary Lake, Lower St. Mary Lake, Swift Current Lake (McDermott Lake), Lower Two Medicine Lake, and elsewhere.

*MYRIOPHYLLUM EXALBESCENS* Fernald (*M. spicatum* L. of Standley's Flora of Glacier Park.): This aquatic also occurs generally in the waters of the Park, sometimes to a depth of 8 meters: John's Lake, Lake McDonald, Lower Two Medicine Lake, St. Mary Lake, Lower

<sup>1</sup> Identified by Dr. A. S. Hitchcock.

<sup>2</sup> Determined by Dr. C. R. Ball.

<sup>3</sup> Verified by Dr. K. M. Wiegand.

<sup>4</sup> Dr. K. M. Wiegand kindly compared this collection with a duplicate type deposited at the Cornell Herbarium.



St. Mary Lake, Flat Top Lake, Swift Current Ridge Lake (Bath Tub), and a small pond near Many Glaciers Hotel.

*ECHINOPANAX HORRIDUM* (J. E. Smith) Decaisne & Planch.: This handsome shrub was observed commonly along the woodland trail to Gunsight Lake (not collected).

*CORNUS CANADENSIS* L.: Growing in the woodland about Mirror Pond, above St. Mary Lake.

\**STEIRONEMA CILIATUM* (L.) Raf.: Found abundantly in swampy woodland about outlet, Lower St. Mary Lake.

\**SCUTELLARIA EPILOBIIFOLIA* Hamilt. (*S. galericulata* of Am. Auth.): Locally common in marshes south of John's Lake.

*LIMOSELLA AQUATICA* L.: This delicate little mud plant was found abundantly along the banks of Swift Current Creek, near its passage into Lake Sherburne.

*VIBURNUM PAUCIFLORUM* Pylaie.: Occurring in thickets on the sand beaches, inlet of St. Mary Lake.

\**SOLIDAGO DILATATA* A. Nels.:<sup>10</sup> Occurring on banks in the vicinity of Many Glaciers Checking Station.

\**SOLIDAGO SCOPULORUM* (Gray) A. Nels.:<sup>1</sup> The alpine form was collected in the meadows above Cracker Lake, and on rocky slopes at Piegan Pass.

*ARNICA DIVERSIFOLIA* Greene: Is splendidly developed in the woods, margin about Lake Josephine. Here and particularly in meadows about Elrod Lake is an exceedingly interesting form of the *Diversifolia* group which is not placeable in the above species.

The Section *Alpinae* of the Genus *Arnica* seems to be particularly well developed in the higher regions of the Park, yielding many varied forms which should be given more intensive field studies. There occurs here abundantly *A. alpina* of Am. Auth. (which is possibly not *A. alpina* (L.) Olin on the authority of Dr. Aven Nelson). About timber line occurs a plant referable to *A. Rydbergii* Greene, and in the rocky slopes at Piegan Pass (7500 ft.) was found a beautiful little member of this group which seemingly is not referable to any of the known species from North West America.

Mention here may possibly be made of a fine, large-leaved *Arnica*, probably of the *Foliosae* group, found in the low-lying swampy woodland at the outlet end of Lower St. Mary.

Unless otherwise noted, all specimens recorded in this paper are on deposit in the Herbarium of the Utah State Agriculture College.

UTAH STATE AGRICULTURE COLLEGE,  
Logan.

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<sup>1</sup> Determined by Dr. Aven Nelson.